DOCUMENT RESUME

ED 237 559 TM 830 823

AUTHOR Schau, Candace Garrett; Scott, Kathryn P.
TITLE The Impact of Gender Characteristics of Reading Materials: A Synthesis of the Research Literature.
PUB DATE Apr 83
NOTE 30p.; Paper presented at the Annual Meeting of the American Educational Research Association (67th, Montreal, Quebec, April 11-15, 1983).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attitude Change; Attitude Measures; Comprehension; Elementary Secondary Education; Higher Education; *Instructional Materials; *Sex Differences; *Sex Role; *Sex Stereotypes; *Student Attitudes

ABSTRACT

Recent reviews indicate that most instructional materials are still sexist. This paper includes definitions of sexist and sex-equitable which incorporate both language form and gender content. It presents generalizations synthesized from the experimental research regarding the effects of gender characteristics of instructional materials on students. They apply to students from preschool through college age: (1) Exposure to sex-equitable materials results in more flexible sex-role attitudes for both males and females. There is little generalization to areas not specifically covered in the materials. Amount of attitude change is directly related to amount of exposure. (2) Females prefer materials with female main characters; males prefer same-sex characters but also like materials containing traditional male content. Students do not reject sex-equitable materials. (3) The patterns for comprehension are not as clear, but sex-equitable materials do not decrease comprehension. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED237559

THE IMPACT OF GENDER CHARACTERISTICS OF READING MATERIALS: A SYNTHESIS OF THE RESEARCH LITERATURE

Candace Garrett Schau
University of New Mexico

and

Kathryn P. Scott
Florida State University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
C. Schau
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A shorter version of this paper was presented as part of the symposium "Research on the Effects of Sex-Equitable Instructional Materials" presented at the 1983 annual meeting of the American Educational Research Association in Montreal, Canada.
Correspondence should be addressed to the first author, Educational Research and Evaluation Center, College of Education, University of New Mexico, Albuquerque, New Mexico 87131.

TM830823

ABSTRACT

Recent reviews indicate that most instructional materials are still sexist. This paper includes definitions of sexist and sex-equitable which incorporate both language form and gender content. It presents generalizations synthesized from the experimental research regarding the effects of gender characteristics of instructional materials on students. They apply to students from preschool through college age:

1. Exposure to sex-equitable materials results in more flexible sex-role attitudes for both males and females. There is little generalization to areas not specifically covered in the materials. Amount of attitude change is directly related to amount of exposure.

2. Females prefer materials with female main characters; males prefer same-sex characters but also like materials containing traditional male content. Students do not reject sex-equitable materials.

3. The patterns for comprehension are not as clear, but sex-equitable materials do not decrease comprehension.

THE IMPACT OF GENDER CHARACTERISTICS OF READING MATERIALS: A SYNTHESIS OF THE RESEARCH LITERATURE

Approximately 90% of pupil learning time in schools involves the use of print and non-print instructional materials, including textbooks, literature, films, film strips, records, tapes, television, and computer software. Outside of school, students also spend large amounts of time with the same kinds of materials. These materials, including their gender characteristics, have tremendous potential to influence children. And they do, not only in regard to comprehension and interest but also sex-role development.

Theories of sex-role development and sex-typing suggest why instructional materials can influence their user's sex-roles. Two of the most relevant theories for examining the effects of gender characteristics of materials are social learning theory and gender schema theory. Both postulate the importance of environmental and cognitive factors in these processes, although they differ in regard to which set of factors receives primary emphasis. Observational learning is one important process in the impact of the environment. Instructional materials present numerous sex-role models, even though their purposes usually are to teach content or process skills to students.

Both language forms and content are involved in defining the amount of sex bias in materials. In traditional usage, the male generic pronoun refers to people in general or to an individual when the sex of the person is unknown or is irrelevant. Gender

unspecified language eliminates the male referent by substituting another term, such as "people" for "man", or changing to a plural, as in "they" instead of "he". Gender specified language refers explicitly to both females and males, as in "women and men" and "he or she", or to the specific single sex involved.

Classifying materials in regard to sex bias includes consideration of the roles and the sexes of the characters present in materials, as well as the language forms used. Sex biased (or sexist or traditional) materials are those in which (a) females appear as main characters and in illustrations far less frequently than males; (b) females and males are usually portrayed in sex-stereotypical roles; (c) females appear more often than males in derogatory roles; and/or (d) male generic language and male pronouns are used.

In contrast, sex-equitable materials reflect the reality of the presence of females in the world, their contributions, and the changing roles of both females and males. At one end of the sex-equitable continuum are sex-fair materials which include females and males in numbers proportional to reality and include both traditional and nontraditional sex-roles. Use of male generic language forms is avoided. At the other end of the continuum, sex-affirmative materials emphasize role-reversals, that is, males and females in nontraditional roles, and explain the benefits and problems of these reversals, including barriers and discrimination. Language which is gender-specified is emphasized.

For well over a decade, surveys of print and non-print materials have concluded that most of these materials are sex-biased (e.g., U.S. Commission on Civil Rights, 1980). Many sex-affirmative supplemental materials, especially highlighting women, recently have become available. Some sex-equitable fiction and trade books are now available. But similar changes in basic textbooks have been slow (Britton & Lumpkin, 1977). Roles for males in texts remain especially sexist (Scott, 1981).

Most print and non-print materials are sexist. Does this affect materials' users and if so how?

Previous researh comparing the impact of gender-unspecified and gender-specified language forms with male generic forms clearly shows that the form of language affects students' knowledge and images. Scott and Schau (in press) reached the following conclusions: 1) Male generic language produces images and knowledge that are overwhelmingly male, especially for male students; 2) Gender-unspecified and gender-specified language elicit more gender-balanced images and understandings than male generic language for both females and males; and 3) Gender-specified language yields the most gender-balanced images and understandings, especially for males. These generalizations apply to studies of all ages, from primary to college level.

This paper examines research findings relating gender-related story characteristics to student's sex-role attitudes and to their preference for and comprehension of the materials.

METHOD

Study Selection

Following Glass' (1981) advice, all available studies regardless of "quality" were examined. The only requirement for inclusion was that the study contained some kind of control group and/or pre- post-measure so that an indication of the effects of the materials was available. We located and reviewed as many studies as we could find. These studies included published articles from journals, books, and technical reports; unpublished articles; and articles presented at national, regional, and local meetings. We searched each issue of the journals that have published the majority of research in this area from 1970 (or the journal's inception date) to December 1982; these included Sex Roles, Psychology of Women Quarterly, Child Development, Journal of Educational Psychology, and The Reading Teacher. We also searched convention programs from the annual meetings of the American Psychological Association and the American Educational Research Association since 1975. We examined reference lists from each study and obtained articles cited in them that we did not already have.

Synthesis Process

We summarized each study in table form, describing their most important characteristics. They included: age/grade, number, ethnicity, and geographical location of the subjects in the sample; materials; procedures; types of measures; and results

related only to the effects of the materials and to their interactions with other important subject characteristics, especially sex and age/grade. These tables were used to draw the conclusions contained in this paper.

RESULTS

Design Communalities

As would be expected, the research studies in all four areas had some common design features. Most frequently, the researchers exposed one or more experimental groups of students to the materials and measured the effects. Usually, these materials were role-reversed or sex-affirmative (e.g., Scott & Feldman-Summers, 1979). However, three additional types of experimental groups were sometimes used. In one, the materials were sex-fair (e.g., Flerx, Fidler, & Rogers, 1976). In the second, the researcher used culturally sex-neutral or relatively unfamiliar occupations and presented these in same- and opposite-sex gender-specified forms (e.g., Franzoni, 1980). In the third, which occurred infrequently, the research included a gender-unspecified condition (e.g., Barclay, 1974, used first-person).

The results from the experimental group(s) was (were) compared to one or more of four kinds of control groups. Following traditional experimental design considerations, one kind of control group received the same materials as the experimental group received but with the sex of the main character(s) reversed; this group, then, received materials that included culturally traditional sex-typing and so were sexist

(e.g., Knell & Winer, 1979). These materials controlled for all aspects of the experimental materials. A second kind of control group received different stories which contained culturally traditional sex-typing and so again were sexist (e.g., Flerx, Fidler, & Rogers, 1976). These materials did not explicitly control for the properties of the experimental materials used. The third type of control group was exposed to stories that were supposed to be sex-role absent, that is, completely free of gender associations, such as stories about animals. This group served as a placebo and so controlled for the attention received by the experimental group(s) (e.g., Berg-Cross & Berg-Cross, 1978). The last type of control group received no comparable activity at all but completed the instruments (e.g., Ashby & Wittmaier, 1978).

In these latter two cases, researchers reasoned that culturally traditional sexist materials would not affect students since they are continually exposed to these types of materials on t.v., in films, and in print. Thus, measuring an equivalent group of non-treatment subjects, with or without the placebo control, was assumed to give the needed control comparison. There is some evidence that this reasoning is correct. Schau, Kahn, & Tremaine (1976) used both the sexist and the placebo control groups and found no difference in attitudes between them, leading them to omit the use of either type in a subsequent study (Schau, 1978).

Effects on Sex-Role Attitudes

The results of nineteen studies, some with several relevant comparisons, quite consistently show that sex-equitable materials contribute to more flexible sex-role attitudes while sexist materials may contribute to sex-typed sex-role attitudes. Both females and males from about 5 to 21 years old who were exposed to sex-equitable materials about occupations were less sex-typed than control groups for job attributions (Barclay, 1974; Greene, Sullivan, & Beyard-Tyler, 1982; Hurwitz & White, 1977; Johnston, Ettema, & Davidson, 1980; Schau, 1978). Students from 9 to about 21 years old who were exposed sex-equitable or same-sex gender-specified materials also were less sex-typed in their own personal occupational aspirations (Bem & Bem, 1973; Costello, 1979; Franzoni, 1980; Plost & Rosen, 1974). Students from 3 to 12 years old who were exposed to sex-equitable materials about roles and activities were less sex-typed than controls in their attitudes about children's roles and traits (Berg-Cross & Berg-Cross, 1978; Flerx, Fidler, & Rodger, 1976; Johnston, Ettema, & Davidson, 1980; Scott & Feldman-Summers, 1979); adult roles and traits (Ashby & Wittmaier, 1978, for girls; Davidson, Yasuna, & Tower, 1979, for female traits; Flerx, Fidler, & Rogers, 1976; Johnston, Ettema, & Davidson, 1980); and personal interest in traditionally opposite-sex activities (Johnston, Ettema, & Davidson, 1980 for girls; Lutes-Dunckley, 1978, at least when tested by an opposite-sex experimenter).

In two studies, exposure to role-reversed or sex-affirmative materials did not weaken sex-typed attitudes, but exposure to sexist materials strengthened them (Knell & Winer, 1979, for nursery school girls only on three of six dependent measures; Yanico, 1978, for college students' attributions to one of two traditional female and one of two traditional male jobs). Similarly, Jenkins (in Nilsen, et. al., 1977) found that the class of first-grade children who had used a sexist reading program from kindergarten through the first seven months of first grade were more sex-typed about children's roles than a second class who had used a program intermittently and than a third class who had used the traditional reading program (which also could have been sexist--see Scott, 1981).

Only two studies found no effects or inconclusive results. Schau, Kahn, & Tremaine (1976), using elementary school children, found no differences between role-reversed, sexist, and placebo groups. They, however, rewrote existing sexist stories to be role-reversed only by changing the sex of the main characters. They attiributed their lack of significant differences to this development method. Pingree's results (1978) were inconclusive. Third graders and eighth grade girls exposed to sex-equitable materials were less sex-typed in their attitudes toward women than were control groups exposed to sexist materials; the opposite pattern, however, occurred for eighth grade boys.

Generalization

Although sex-equitable materials make children's attitudes about others and about themselves less sex-typed, these changes do not seem to generalize to contents not included in the materials. Four studies had explicit design features to test pupils' generalization about sex-roles to situations other than those presented in the materials. Three founded no generalization (Barclay, 1974; Schau, 1978; Scott & Feldman-Summers, 1979, for no generalization effect; Greene, Sullivan, & Beyard-Tyler, 1982, for generalization for boys only).

Sex Differences

Most studies have found few sex differences in attitude change. Those that have reported sex differences tend to show no consistent patterns (Ashby & Wittmaier, 1978; Bem & Bem, 1973; Costello, 1979; Flerx, Fidler, & Rogers, 1976; Franzoni, 1980; Greene, Sullivan, & Beyard-Tyler, 1982; Knell & Winer, 1979).

The exception to this was the evaluation of Freestyle, a sex-affirmative television series aimed at nine to twelve year olds (Johnston, Ettema, & Davidson, 1980). This evaluation revealed two types of sex differences. One type of effects involved changes toward sex-role flexibility in both sexes but greater changes in one: the sex that changed most was the one to whom the stereotype is culturally attributed and the opposite one from the sex whose participation was increasing. For example, although both males and females in the more intensive of the two levels of the treatment became less sex-typed than the control

students in their attributions of females participating in mechanics and athletics, boys changed more. The other set of sex differences involve changes toward flexibility in one sex only. Consistent with the findings from the other studies involving sex differences, there was no obvious pattern to these changes.

Overall, then, sex-equitable and sexist materials tend to affect females and males attitudes about equally. When they do affect attitudes differentially by sex, the patterns are not clear.

Age Differences

Few studies have examined age differences in the effects of sex-equitable materials or have even included subjects of several ages to examine age trends. Those studies testing for age relationships in regard to treatment effects have found very few (Flerx, Fidler, & Rogers, 1976; Schau 1978).

Amount of Exposure

It is clear from the research that short exposures do produce some attitude changes. Increasing exposure to sexist materials, especially with young children, may result in increasing sex-typing of attitudes (Jenkins, in Nilsen, et. al., 1977). Similarly, increasing exposure to sex-equitable materials is related to decreasing sex-typing in attitudes. Schau (1978) found small but significant negative relationships between the number of sex-equitable occupational stories the elementary school children experienced and their degree of sex-typing in

their job attribution: as the number of stories increased, sex-typing decreased. In the Freestyle evaluation, children who experienced the full school condition (viewing the sex-equitable series plus other sex-affirmative activities related to the series) became less sex-typed in many more attitude areas than those in the view-only condition. Also, most of the single sex effects that occurred in the view-only condition occurred for both sexes in the full school condition (Johnston, Ettema, & Davidson, 1980).

Correlational research also supports the relationship between sex-typed attitudes and amount of exposure, at least to traditional television shows. Beuf (1974), using 3 to 6 year olds, found that their amount of television viewing was positively related to sex-typed attitudes about traditionally sex-typed occupations. McGhee & Frueh (1980) found that heavy viewers in grades 1, 3, 5, and 7 held more sex-typed views of traditionally female traits than light viewers. Boys and girls who were light viewers showed generally decreasing sex-typing of traditionally male traits with increasing age. Ross, Anderson, & Wisocki (1982) found positive relationships between sex-typed self-concepts and amount of sex-typed television viewing for college students and for a small sample of elderly people.

Effects on Preference

Of the 12 studies including interest measures, only two varied both the sex of the main charaters and their roles together, while attempting to maintain comparable quality. Jaudon-Kropp and Halverson (in press) studied 32 five and six year olds. They found that both girls and boys preferred stories that included characters exhibiting traditional characteristics (playing with culturally sex-appropriate toys), regardless of the main character's sex. Klein (1970), who studied 312 fifth-graders, reported that boys preferred stories about characters participating in traditional occupations, thus supporting Jaudon-Kropp and Halverson's finding. He reported that girls, however, preferred female characters, regardless of the cultural appropriateness of their occupations. Scott and Feldman-Summers (1979) found no differences in preferences among third and fourth graders.

Several of studies in this area examined children's preferenes for sex of character in stories containing only traditional roles. Their results consistently indicated that both boys and girls from 6 to 18 years of age prefer stories with same-sex characters (Beyard-Tyler & Sullivan, 1980; Connor & Serbin, 1978, for boys 9 to 14 and older girls in that age group; Klein, 1979; Rose, Zimet, & Blom, 1972).

Three studies examined preferences for roles in stories that included roles traditionally associated with only one sex. Two reported no preference differences. Scott and Feldman-Summers (1979) had third and fourth graders read eight stories which were

role-reversed or traditional but which contained only male roles. Rakes, Bowman, and Gottfred (1977) exposed an unreported number of adolescents to fictional stories which included characters exhibiting traditional and nontraditional female roles. The adolescents displayed no mean preferences. McArthur and Eisen (1976), however, reported that preschool children overwhelmingly preferred the same same-sex character when they were exposed to one story featuring either a male or a female achiever or a placebo story.

Two studies examined role preference in same-sex stories and found conflicting results. Jennings (1975) exposed 64 four and five year old children to two same-sex stories, one with the main character aspiring to a traditionally sex-appropriate occupation and the second to a role-reversed occupation. The children preferred the stories with the traditional occupation. Frasher and Frasher (1978) studied 9 to 12 year olds and reported that girls preferred same-sex stories containing role-reversed traits while boys had no preference.

One additional study is unique in design and does not fit well with the previously reported ones. Frasher (1977) studied 31 8 and 9 year old children who listened to a story containing one role-reversed female character, one traditional female character, and one traditional male character. The children preferred the nontraditional female character.

The evaluation of the Freestyle sex-equitable television series included interest results. Freestyle was carried by 230 of the 265 Public Broadcasting System (PBS) stations in the U.S. (about 87%). Its average Nielsen rating was slightly above 2.0, which is the midpoint for children's PBS programs. Nationally, about 5.5% of U.S. homes containing 6 to 11 year old children watched this series. Of the families asked to view the series as part of the evaluation scheme, an average of 32% actually did. The evaluators concluded that the series was quite interesting to the target-age children (Johnston, Ettema, & Davidson, 1980).

Effects on Comprehension

Nine studies have investigated the relationship between comprehension and gender characteristics Most, however, studied recall or recognition, the lowest types of cognitive skills according to Bloom's Taxonomy of Learning. Also, most of these studies did not vary the sex of the main character and the role together. Thus, conclusions are quite tenative. The studies that have varied some aspects of these two dimensions report conflicting results.

Koblinsky, Cruse, & Sugawara (1978) had 48 fifth graders read two stories written to include traits and behaviors considered sex-appropriate by fifth graders. Within each story, the two main characters (a girl and a boy) exhibited characteristics that were sexist, as defined by the children, and others that were role-reversed. Pupils recalled significantly more about the traditional characteristics found in the culturally appropriate

combination of character and characteristic; they were especially unable to remember the nontraditional traits exhibited by males.

Two other studies reported similar findings but with respect to one sex only. Klein (1970) had 312 fifth graders read 6 stories (2 per job) about a traditional male occupation (pilot), a traditional female occupation (ballet dancer), and a sex-neutral occupation (social worker). A female and a male were portrayed in each career to make a total of six stories. Girls had higher comprehension scores for the stories featuring traditional female content than their scores for stories featuring traditional male content, regardless of the sex of the main character. There were no differences for boys. The neutral condition, which is not sex-neutral in reality, was not analyzed. Similarly, Klein (1979) had 46 fifth and sixth graders read stories with either traditional male activities or traditional female activities. He found that girls had higher comprehension scores than boys of the traditional female stories; there was no sex difference for the traditional male stories.

However, McArthur & Eisen (1976), who studied 68 three to five year old children, found no significant differences in mean recall scores for a story featuring a male exhibiting a traditional male trait (achievement) than the role-reversed version of the same story.

Two studies examined pupils' recall to same-sex stories that included sexist or role-reversed content. In both cases, students tended to recall more about the role-reversed than the traditional stories. Jennings (1975), who studied 64 four and

five year old boys and girls, found that both sexes had higher recall about a same-sex nontraditional story than about a similar traditional story. Frasher & Frasher (1978), studying 162 nine to twelve year old children, also reported that both boys and girls showed higher comprehension for a same-sex role-reversed story about than for a similar traditional story.

Two studies also have been done examining recall from stories containing sex-neutral or relatively unfamiliar content. Deutsch (1975) found that 32 three and four year old children recalled more about sex-neutral stories with same-sex than with opposite-sex main characters. Franzoni (1980), however, studied 342 fourth and eighth grade girls and boys; she concluded that they did not differ in their recall about relatively unfamiliar occupations based on the sex of the main character in the story (male, female, gender unspecifed).

Thus, the research evidence about comprehension is not comprehensive, consistent, or conclusive. There are few research studies in this area, and most of those that do exist have not systematically varied role and sex of characters. Comprehension is probably related to the current level of the student's sex-typing (see Martin & Halverson, 1981, for a discussion of this issue). None of the research in this area has examined comprehension in relation to the individual's existing sex-role self-concepts or attitudes.

DISCUSSION AND SUMMARY

It is very clear that the gender characteristics of instructional materials do affect students. Clarity and specificity of generalizations describing these effects vary depending on the area examined.

The most extensively researched area has examined changes in sex-role attitudes after exposure to sex-equitable or sexist materials. The research yields four generalizations that apply to both females and males:

1. Exposure to sex-equitable materials and to same-sex gender-specified characters in nontraditional experiences results in less sex-typed attitudes in students from 3 to at least 22 years of ages.

2. Exposure to sexist materials may increase sex-typed attitudes, especially among young children.

3. The effects of sex-equitable materials do not usually generalize to areas <u>not</u> specifically covered in the materials, especially for preschool and elementary age students.

4. Attitude change increases with increased exposure.

Thus, sex-equitable materials are need to assist students to develop more flexible sex-role attributes. This flexibility should help them make educational, career, and life choices based on their own interests rather than on preconceived notions of

what is "right" for males and females.

The research on preference is not as extensive. But it is important because, before the 1970s, surveys concluded that girls were interested in reading about both males and females but that boys preferred materials about males (Zimet, 1966). Reading specialists recommended that instructional materials emphasize male characters and roles; they reasoned that both boys and girls would express interest in the materials.

More recently, these older surveys of pupils' preferences have been questioned for at least two reasons (Tibbetts, 1974). First, pupils may express these preferences because of cultural expectations about what is appropriate sex-typed content for them to read rather than as a result of inherent interest. Second, the apparent dislike by boys of stories about females may reflect a difference in the quality of stories about and for girls and boys. In a survey by Women on Words and Images (1972), stories about girls were weak and uninteresting in comparison to those about boys.

In spite of the small number of studies, the research supports three generalizations that apply from primary through college level.

1. Materials featuring main characters in role-reversals are <u>not</u> rejected by students and in some cases are preferred over those with sex-typed themes.

2. Females often show a preference for female main characters, especially when the role content is traditional.

3. While boys also show a preference for same-sex characters (especially when the role content is traditional), they also are interested in materials with traditional male role content, regardless of the sex of the main characters.

These generalizations imply that sex-fair instructional materials assist in generating interest in both male and female students.

The results from research on comprehension show no obvious patterns. This area contains the smallest number of studies. However, it appears that sex-equitable materials do not adversely affect males' or females' comprehension.

Many of the studies in all three areas involve several aspects which limit their generalizability and/or practical usefulness. These aspects include: the properties of the materials themselves; properties and lasting effects of the treatment; subject characteristcs; and properties of the instruments used to evaluate the treatments.

Generally, the materials used include sex-equitable aspects, often several used concurrently, as well as the presentation of positive characteristics and roles valued by children, use of interesting plots, and so on. Thus, the research gives very little indication of exactly which sex-equitable elements are responsible for effects and how powerful each element is. Also, the sex-equitable and sexist characteristics of the stories generally have been evaluated by the researchers themselves with no outside validation.

There are few experimental studies using adolescents and college students as subjects and none using non-college adults. It obviously is important to study these age groups as well. Also, most of the adolescent studies used vocational information in the materials while studies with younger ages tended to use social studies or fictional topics. The topics covered in the materials need to be expanded, especially to the areas of mathematics, the biological and physical sciences, and actual vocational training materials (such as car mechanics manuals) since these areas are very important in career development.

Most of the subjects, as well as the experimenters or teachers, have been White and middle class. The research needs to be expanded to other ethnic and social class groups.

Most of the research has not related initial subject sex-role characteristics, like attitides and self-concept, to the effects of the materials. Gender schema theory attaches importance to these characteristics in regard to outcomes concerning sex-role attitudes, preferences for materials, and comprehension from materials.

The individual areas also have some specific weaknesses that need research attention. In the area of attitudes, the amount of exposure to sex-equitable materials that is needed to produce changes in sex-role attitudes is not known. As this review shows, short exposures produce some changes and changes seem to increase with increased exposure. But all of the experimental studies have been relatively short, with the longest two including a 20 to 30 minute exposure to print materials per day for four consecutive school weeks (Schau, 1978) or a 15 minute

exposure to television twice per week for 13 weeks (Johnston, Ettema, & Davidson, 1980). Will attitudes continue to change with more and more exposure to sex-equitable materials? And how long do the changes last?

Many of the instruments used to measure various sex-role aspects seem weak. Several appear to lack reliability because they are so short. The content validity of others is unknown in that the relationship between the instruments and the materials is not clear; as with many of the materials themselves, the researchers assume validity of their instruments.

In the areas of preference and comprehension, more studies are needed that systematically vary the sex of the main character (female, male, gender-unspecified) and role (traditional, role-reversed, neutral). The relationship between interest/preference and comprehension also needs further exploration.

In spite of the limitations, there is research evidence that sex-equitable materials can improve the learning experiences of both female and male students. They assist in developing more flexible sex-role attitudes. They are not rejected by students and sometimes are preferred. And they do not interfere with comprehension.

References

Ashby, M.S., & Wittmaier, B. C. Attitude changes in children after exposure to stories about women in traditional or nontraditional occupations. Journal of Educational Psychology, 1978, 70, 945-949.

Barclay, L. K. The emergence of vocational expectations in preschool children. Journal of Vocational Behavior, 1974, 4, 1-14.

Bem, S. L., & Bem, D. J. Does sex-biased job advertising "aid and abet" sex discrimination? Journal of Applied Social Psychology, 1973 3, 6-18.

Berg-Cross, L., & Berg-Cross, G. Listening to stories may change children's attitudes. The Reading Teacher, 1978, 31, 659-663.

Beuf, A. Doctor, lawyer, household drudge. Journal of Communications, 1974, 24, 142-145.

Beyard-Tyler, K. C., & Sullivan, H. J. Adolescent reading preferences for type of theme and sex of character. Reading Research Quarterly, 1980, 16, 104-120.

Britton, G. E., & Lumpkin, M. C. For sale: Subliminal bias in textbooks. The Reading Teacher, 1977, 31, 40-45.

Connor, J. M., & Serbin, L. A. Children's responses to stories with male and female characters. Sex Roles, 1978, 4, 637-645.

Costello, E. M. The impact of language in job advertising on fair practices in hiring: A reseArch note. Journal of Applied Social Psychology, 1979, 9, 323-325.

Davidson, E. S., Yasuna, A., & Tower A. The effects of television cartoons on sex-role stereotyping in young girls. Child Development, 1979, 50, 597-600.

Deutsch, F. Effects of sex of subject and story character on preschoolers' perceptions of affective responses and intrapersonal behavior in story sequences. Developmental Psychology, 1975, 11, 112-113.

Flerx, V. C., Fidler, D. S., & Rogers, R. W. Sex role stereotypes: Developmental aspects and early intervention. Child Development, 1976, 47, 998-1007.

Franzoni, J. B. Children's reactions to gender-biased materials in career education. Paper presented at the annual meeting of the American Psychological Association, Montreal, Canada, 1980.

Frasher, R. S. Boys, girls and Pippi Longstocking. The Reading Teacher, 1977, 30, 860-863.

Frasher, R. S., & Frasher, J. M. Influence of story characters' roles on comprehension. The Reading Teacher, 1978, 32, 160-164.

Glass, G. V., McGraw, B., & Smith, M. L. Meta-analysis in social research. Beverly Hills, CA: Sage Publications, 1981.

Greene, A. L., Sullivan, H. J., & Beyard-Tyler, K. Attitudinal effects of the use of role models in information about sex-typed careers. Journal of Educational Psychology, 1982, 74, 393-398.

Hurwitz, R. E., & White, M. A. Effects of sex-linked vocational information on reported occupational choices of high school juniors. Psychology of Women Quarterly, 1977, 2, 149-156.

Jaudon-Kropp, J., & Halverson, C. F. Preschool children's preferences and recall for sex-appropriate and sex-inappropriate stories. Sex Roles (in press).

Jennings, S. A. Effects of sex typing in children's stories on preference and recall. Child Development, 1975, 46, 220-223.

Johnston, J., Ettema, J., & Davidson, T. An evaluation of Freestyle: A television series to reduce sex-role stereotypes. Ann Arbor, MI: Institute for Social Research, University of Michigan, 1980.

Klein, H. A. Interest and comprehension in sex-typed materials. In J. H. Catterson (Ed.), Children and Literature. Newark, DE: International Reading Association, 1970, 59-64.

Klein, H. A. What effect does non-sexist content have on the reading of boys and girls. Reading Improvement, 1979, 16, 134-138.

Knell, S., & Winer, G. A. Effects of reading content on occupational sex role stereotypes. Journal of Vocational Behavior, 1979, 14, 78-87.

Koblinsky, S. G., Cruse, D. F., & Sugawara, A. I. Sex role stereotypes and children's memory for story content. Child Development, 1978, 49, 452-458.

Lutes-Dunckley, C. J. Sex-role preferences as a function of sex of storyteller and story content. Journal of Psychology, 1978, 100 151-158.

Martin, C. L., & Halverson, C.F. A schematic processing model of sex typing and stereotyping in children. Child Development, 1981, 52, 1119-1134.

McArthur, L. Z., & Eisen, S. V. Achievements of male and female storybook characters as determinants of achievement behavior by boys and girls. Journal of Personality and Social Psychology, 1976, 33, 467-473.

McGhee, P. E., & Frueh, T. Television viewing and the learning of sex-role stereotypes. Sex Roles, 1980, 6, 179-188.

Nilsen, A. P., Bosmajian, H., Gershuny, H. L., & Stanley, J. P. (Eds.) Sexism and Language. Urbana, IL: National Council of the Teachers of English, 1977.

Pingree, S. The effects of nonsexist television commercials and perceptions of reality on children's attitudes about women. Psychology of Women Quarterly, 1978, 2, 262-277.

Plost, M., & Rosen, M. J. Effect of sex of career models on occupational preferences of adolescents. A-V Communication Review, 1974, 22, 41-50.

Rakes, T. A., Bowman, H. L., & Gottfred, S. Reader preference as related to female aggressiveness and stereotyped character roles. Reading Improvement, 1977, 14, 30-35.

Rose, C., Zimet, S. G., & Blom, G. E. Contents counts: Children have preferences in reading textbook stories. Elementary English, 1972, 49, 14-19.

Ross, L. Anderson, D. R., & Wisocki, P. A. Television viewing and adult sex-role attitudes. Sex Roles, 1982, 8, 589-592.

Schau, C. G. Evaluating the use of sex-role-reversed stories for changing children's stereotypes. Paper presented at the annual meeting of the American Educational Research Association, Toronto, Canada, 1978.

Schau, C. G., Kahn, L., & Tremaine, L. Effects of stories on elementary school children's gender-stereotyped attitudes toward adult occupations. Unpublished manuscript. Albuquerque, New Mexico: University of New Mexico, 1976.

Scott, K. P. Whatever happened to Jane and Dick: Sexism in texts re-examined. Peabody Journal of Education, 1981, 58, 135-140.

Scott, K. P., & Feldman-Summers, S. Children's reactions to textbook stories in which females are portrayed in traditionally male roles. Journal of Educational Psychology, 1979, 71, 396-402.

Scott, K. P., & Schau, C. G. Sex equity and sex bias in instructional materials. In S.S. Klein (Ed.), Achieving sex equity through education. Baltimore, MD: Johns Hopkins University Press (in press).

Tibbetts, S. L. Sex differences in children's reading preferences. The Reading Teacher, 1974, 28, 279-281.

U.S. Commission on Civil Rights. Characters in texbooks: A review of the literature. Washington, DC: U.S. Government Printing Office, 1980.

Women on Words and Images. Dick and Jane as victims: Sex stereotyping in children's readers. Princeton, NJ: Author, 1972.

Yanico, B. J. Sex bias in career information: Effects of language on attitudes. Journal of Vocational Behavior, 1978, 13, 26-34.

Zimet, S. G. Children's interest and story preference. Elementary School Journal, 1966, 67, 122-130.